Aquatic Manual disease chapter template

1. Case definition

(Please start this chapter with a simple definition of the disease)

"For the purpose of this chapter, DISEASE NAME is considered to be INFECTION WITH PATHOGEN NAME."

2. Information for the design of surveillance programmes

(Information on some of the following items is required for the design of surveillance programmes as described in Chapter 1.1.4 of the *Aquatic Manual*. Information on other items is needed to provide details on possible risk management and disease control measures as described in the *Aquatic Code*.

There is no need to split the sections a) to d) into subsections to address each item. Also, it is acknowledged that it will not be possible to provide – and reference – scientific data on each of these items for each disease; some aspects will be well covered, while there will be a dearth of information on others. Authors may wish to draw attention to areas where there is a significant lack of information).

a) Agent factors

- Aetiological agent, agent strains
- Survival outside the host
- Stability of the agent
- Life cycle

b) Host factors

- Susceptible host species
- Susceptible stages of the host
- Species or sub-population predilection (probability of detection)
- Target organs and infected tissue
- Persistent infection with lifelong carriers
- Vectors

c) Disease pattern

- Transmission mechanisms
- Prevalence
- Geographical distribution
- Mortality and morbidity
- Economic and/or production impact of the disease

d) Control and prevention

- Vaccination
- Chemotherapy
- Immunostimulation
- Resistance breeding
- Restocking with resistant species
- Blocking agents
- General husbandry practices

3. Diagnostic methods

(Please provide a description of diagnostic methods.

The diagnostic methods should include the entire gambit of a disease investigation in a population or an individual animal, i.e. provide descriptions of the clinical, histological etc picture, and not simply the agent detection methods. In previous editions of the *Aquatic Manual*, this information was often captured in the introduction.

It is acknowledged that not all methods listed will be applicable to all diseases. Only the ones that are appropriate should be listed and described)

a) Field diagnostic methods

(This includes observation of the animal and its environment, and gross clinical examinations)

- Clinical signs

b) Clinical methods

(This includes methods that focus on the effects of the pathological agent on the host, rather than on agent detection)

- Gross pathology
- Clinical chemistry
- Microscopic pathology
    - Wet mounts
    - Smears
    - Fixed sections
- Electron microscopy/cytopathology

c) Agent detection and identification methods

(This includes methods that detect, possibly isolate and amplify, and identify the agent. For each method, information on the items in the text box on the right hand side should be provided. This information is required to allow the reader to follow the technique, but also to provide the necessary data – e.g. specificity and sensitivity – that are required for the development of a sampling and surveillance programme.)

- Direct detection methods
  a. Microscopic methods
     - Wet mounts
     - Smears
     - Fixed sections
  b. Agent isolation and identification
     - Cell culture/artificial media
     - Antibody-based antigen detection methods (IFAT, ELISA, ….)
     - Molecular techniques (PCR, ISH, sequencing….)
     - Agent purification
- Indirect detection methods
     - Serological methods

⇒ Samples to be taken

⇒ Technical procedure

- Positive/negative controls

⇒ Levels of validation

- Specificity and sensitivity
- Reference 'Gold' standard

⇒ Interpretation of results

⇒ Availability of test (from Reference Laboratories, commercial sources or easily synthesised)

4. Rating of tests against purpose of use

(This information is needed to determine which test is appropriate for various purposes. For example, a particular method may be highly suitable to diagnose clinical cases of disease in individual animals of a certain age group, but the same method may be rather unsuitable for assessing the infection status of large numbers of clinically health animals. It is an assessment of the test's 'fitness for purpose'.)

	Purpose 1	Purpose 2		
Method 1				
Method 2				

5. Corroborative diagnostic criteria

(Please define, based on the information provided in 1.-4., what constitutes a suspect case of disease, and a confirmed case of disease. This information is required, for example for the purpose of disease investigations, especially in cases where 'free' status is threatened. It would also be required when surveillance of healthy populations yields controversial results, for example, positive PCR signals in the absence of any other evidence of infection.

The definitions of 'suspect' and 'confirmed' will most likely be a combination of positive results from a range of different methods as described under 3.

For example, a certain level of mortality at the right time of the year (see under 2b), in susceptible animals (see under 2a.), together with matching clinical signs (see under 3a), liver lesions and histopathology (see under 3b) could be sufficient for suspicion of DISEASE X. Several combinations may be possible. A confirmed case could be defined where in addition to the above, the agent has been detected. However, detection of viable agents without any disease signs could also constitute a confirmed case.The definitions may differ between different species and may depend on whether case is outside the known geographical/host range.)

a) Definition of suspect case

b) Definition of confirmed case

6. Prescribed diagnostic/detection methods to declare freedom

(Please prescribe the methods, based on the information provided in 1.-3., and assessed in 4., for *targeted surveillance* to declare freedom from infection as outlined in the *Aquatic Code)*

REFERENCES

(Please provide a list key references that confirm the information in the chapter and references that provide useful additional information. References should be to documents that are readily accessible.)